REMARKS

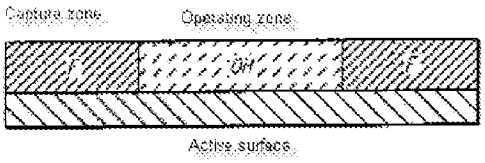
At the outset, the Examiner is thanked for the consideration of the pending application. The Final Office Action dated March 29, 2010 has been received and its contents carefully reviewed.

Claim 1 is hereby amended. Claim 28 is canceled without prejudice or disclaimer. No new matter has been added. Accordingly, claims 1-27 and 29-46 are currently pending. Reconsideration of the pending claims are respectfully requested.

The Office Action rejects claims 1, 4, 10-12, 15, 17, 19, 20, 28, 29, and 32 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent No. 6,210,894 to Brennan (*Brennan*). Claim 28 is canceled, so the rejection of claim 28 is moot. Applicants respectfully traverse the rejection of the remaining claims

To anticipate a claimed invention the prior art must disclose all the elements of the claim. *Brennan* fails to disclose all the elements of claims 1, 4, 10-12, 15, 17, 19, 20, 29, and 32, and thus cannot anticipate these claims.

Claim recites, "a plurality of capture zones for the localized capture of a drop of said liquid of interest formed on said active surface, the capture zones being placed apart on the active surface, a plurality of operating zones formed on said active surface and separate from the capture zones arranged so that said capture zones surround the operating zones continuously or discontinuously, in such a way that the operating zones are at least partially covered by the drop of the liquid of interest when said drop is captured by said capture zones." *Brennan* fails to teach at least these elements of claim 1. The Office Action states "Brennan teaches a device having structures analogous to the claimed active surface, capture zone, and the operating zone as shown below.



" *Office Action of August 31, 2009*, page 13. The Office appears to read the hydrophobic fluoroalkylsilane site (F) on the capture zone and the

derivatized hydrophilic binding site (OH) on the operating zone. As shown in Figure 6 of *Brennan*, the derivatized hydrophilic binding sites (OH) are the individual dots on the array plate, and the hydrophobic fluoroalkylsilane site (F) is the remaining area on the array plate. In other words, the hydrophobic fluoroalkylsilane site (F) is a continuous area on the array plate. Therefore, the hydrophobic fluoroalkylsilane site (F) does not read on the plurality of capture zones being placed apart on the active surface of claim 1.

The Office Action states that "one can just easily read the dark circles of Brennan as part of the capture zone and the regions within the circular regions as the operating zone." *Office Action*, page 13. Applicants respectfully disagree. The dark circles of Figure 6 of *Brennan* are more detailed described in Figure 3(C).

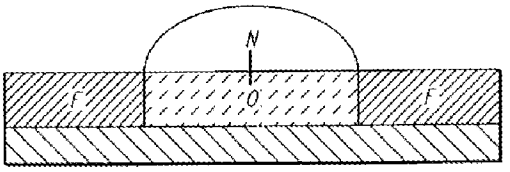


FIG. 3

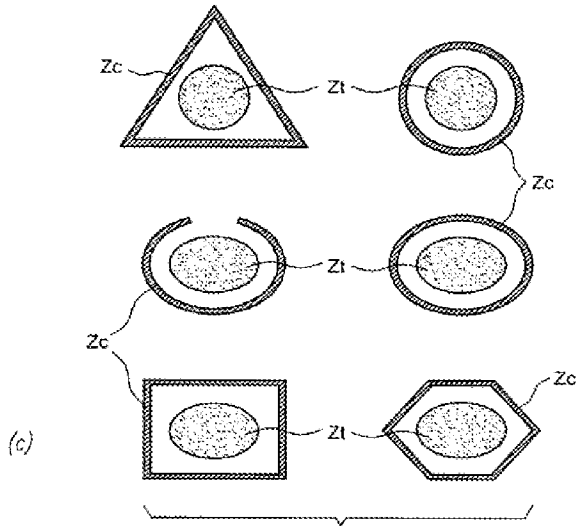


FIG. 1

As shown in Figure 3(C), the "dark circles" of Figure 6 are in fact a line between the region labeled "F" and region labeled "O-N." This line does not and cannot be read as the capture zone. On the other hand, Figure 1 of the present application, for example, shows that capture zones Zc and operating zones Zt. Zc and Zt are two separate zones.

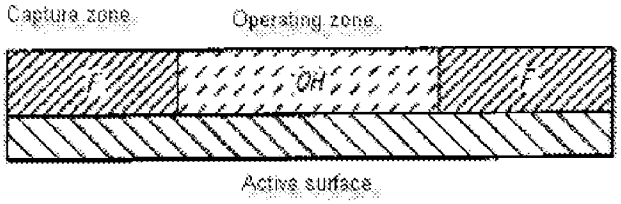
Moreover, claim 1 also recites, "at least one operating zone is a zone that is substantially non-wetting with respect to the liquid of interest." *Brennan* fails to teach at least

these elements of claim 1 as well. The Office Action states "Brennan teaches the operating zone being non-wetting with respect to the sample liquid (column 4 lines 37-43)." Applicants respectfully disagree. Column 4, lines 37-43 of *Brennan* is reproduced below.

> There are two important characteristics of the masked surfaces in patterned oligonucleotide synthesis. First, the masked surface must be inert to the conditions of ordinary oligonucleotide synthesis; the solid surface must present no
> 40 free hydroxy, amino or carboxyl groups to the bulk solvent interface. Second, the surface must be poorly wet by common organic solvents such as acetonitrile and the glycol ethers, relative to the more polar fuctionalized binding sites.

Specifically, *Brennan* discloses that the masked surface "must present **no free hydroxyl, amino, or carboxy groups** to the bulk solvent." *Id.*

In *Brennan*, the hydrophilic binding sites (OH) can be chemically ractive to bind nucleic acids (claim 4), to bind oligonucleotides of known sequence (column 3, lines 9-13) or to bind peptides (column 3, lines 21-33). The binding sites (OH) read on the operating zones. Furthermore, as discussed above, the Office also alleges that **the derivatized hydrophilic binding site (OH) reads on the operating zone**.



As the masked surface must present **no free hydroxyl groups** and the hydrophilic binding sites (OH) include free hydroxyl groups, the masked surface is not the hydrophilic binding sites (OH). Thus, the masked surface does not read on the operating zones of claim 1. Additionally, the hydrophilic binding sites (OH) are wetting with respect to common organic

solvents (e.g., acetonitrile and the glycol ethers). The hydrophilic binding sites (OH) also do not read on the operating zones of claim 1.

Accordingly, *Brennan* fails to teach "at least one operating zone is a zone that is substantially non-wetting with respect to the liquid of interest."

Because it fails to disclose at least these elements of claim 1, *Brennan* cannot anticipate claim 1 or any claims dependent on claim 1. Claim 1 and its dependent claims 4, 10-12, 15, 17, 19, 20, 29, and 32 are allowable over *Brennan*. Applicants respectfully request withdrawal of this rejection.

The Office Action also rejects claims 2, 3, 5, and 16 under 35 U.S.C. §103(a) as being obvious over *Brennan* in view of U.S. Patent No. 6,565,813 to Garyantes (*Garyantes*). Applicants respectfully traverse the rejection.

In order to establish *prima facie* obviousness of the claimed invention, all the elements must be taught or suggested by the prior art. The combined teaching of *Brennan* and *Garyantes* fails to teach or suggest every element of claims 2, 3, 5, and 16, and thus, cannot render these claims obvious.

Claims 2, 3, 5, and 16 variously depend on claim 1 and thus incorporate all the elements of claim 1. Claim 1 recites "a plurality of capture zones for the localized capture of a drop of said liquid of interest formed on said active surface, the capture zones being placed apart on the active surface, a plurality of operating zones formed on said active surface and separate from the capture zones arranged so that said capture zones surround the operating zones continuously or discontinuously, in such a way that the operating zones are at least partially covered by the drop of the liquid of interest when said drop is captured by said capture zones" and "at least one operating zone is a zone that is substantially non-wetting with respect to the liquid of interest." As discussed above, *Brennan* fails to teach at least these elements of claim 1. *Garyantes* does not cure the deficiency of *Brennan*. The Office Action cites *Garyantes* for disclosing a device comprising a plurality of wells having an annular circular shape and surrounding several hydrophilic zones with a hydrophobic zone. *Office Action*, page 4. *Garyantes* also fails to teach or suggest the above-recited elements of claim 1. Accordingly,

claim 1 is also patentable over the combined teaching of *Brennan* and *Garyantes*. Being dependent on claim 1, claims 2, 3, 5 and 16 are also patentable over the combined teaching of *Brennan* and *Garyantes* for at least the same reasons as claim 1. Applicants, therefore, respectfully request withdrawal of the rejection.

The Office Action further rejects claims 6, 8, 9, 13, 14, 18, 21, 22, and 25 under 35 U.S.C. §103(a) as being obvious over *Brennan* in view of U.S. Patent No. 6,017,696 to Heller (*Heller*). Applicants respectfully traverse the rejection.

Claims 6, 8, 9, 13, 14, 18, 21, 22, and 25 variously depend on claim 1, and incorporate all the elements of claim 1. As discussed above, *Brennan* fails to teach or suggest the above-recited elements of claim 1, "a plurality of capture zones for the localized capture of a drop of said liquid of interest formed on said active surface, the capture zones being placed apart on the active surface, a plurality of operating zones formed on said active surface and separate from the capture zones arranged so that said capture zones surround the operating zones continuously or discontinuously, in such a way that the operating zones are at least partially covered by the drop of the liquid of interest when said drop is captured by said capture zones" and "at least one operating zone is a zone that is substantially non-wetting with respect to the liquid of interest." *Heller* also does not cure the deficiency of *Brennan* with respect to claim 1. The Office Action cites *Heller* for disclosing placing electrodes in microlocation zones to control electrophoretic transport of molecules in a sample liquid. *Office Action*, page 6. *Heller* also fails to teach or suggest the above-recited elements of claim 1. Accordingly, the combined teachings of *Brennan* and *Heller* cannot render claim 1 obvious. Dependent claims 6, 8, 9, 13, 14, 18, 21, 22, and 25 are patentable over the combined teaching of *Brennan* and *Heller* for at least the same reasons as claim 1. Applicants, therefore, respectfully request withdrawal of the rejection.

The Office Action also rejects claims 23 and 24 under 35 U.S.C. §103(a) as being obvious over *Brennan* in view of *Heller*, and further in view of U.S. Patent No. 5,440,025 to Marx et al. (*Marx*). Applicants respectfully traverse the rejection.

Claims 23 and 24 variously depend on claim 1 and thus incorporate all the elements of claim 1. As discussed above, the combined teaching of *Brennan* and *Heller* fails to teach or

suggest the above-recited elements of claim 1, "a plurality of capture zones for the localized capture of a drop of said liquid of interest formed on said active surface, the capture zones being placed apart on the active surface, a plurality of operating zones formed on said active surface and separate from the capture zones arranged so that said capture zones surround the operating zones continuously or discontinuously, in such a way that the operating zones are at least partially covered by the drop of the liquid of interest when said drop is captured by said capture zones" and "at least one operating zone is a zone that is substantially non-wetting with respect to the liquid of interest." *Marx* does not cure the deficiency of *Brennan* and *Heller* with respect to claim 1. The Office Action cites *Marx* only for disclosing extracting a nucleic acid with an electrically conductive polymer and polypyrrole as the electrically conductive polymer. *Office Action*, page 9. Like *Brennan* and *Heller*, *Marx* also fails to teach or suggest the above-recited element of claim 1. Accordingly, even in further combination with *Marx* the combined teachings of *Brennan* and *Heller* cannot render claim 1 obvious. Claims 23 and 24 are thus also patentable over the combined teaching of *Brennan*, *Heller*, and *Marx* for at least the same reasons as claim 1. Applicants, therefore, respectfully request withdrawal of the rejection.

The Office Action rejects claims 30-35, 38, 42, and 45 under 35 U.S.C. §103(a) as being obvious over *Brennan*. Applicants respectfully traverse the rejection.

Like claim 1, claim 30 recites, "a plurality of capture zones for the localized capture of a drop of said liquid of interest formed on said active surface, the capture zones being placed apart on the active surface, a plurality of operating zones formed on said active surface and separate from the capture zones arranged so that said capture zones surround the operating zones continuously or discontinuously, in such a way that the operating zones are at least partially covered by the drop of the liquid of interest when said drop is captured by said capture zones" and "at least one operating zone is a zone that is substantially non-wetting with respect to the liquid of interest." As discussed above, *Brennan* fails to teach or suggest these elements of claim 30. Because *Brennan* does not teach or suggest all the elements of claims 1 and 30, it cannot render these claims obvious. Accordingly, claims 1 and 30 are patentable over *Brennan*. Claims 31-35, 38, 42, and 45 variously depend from claims 1 and 30, and thus, are also patentable over *Brennan* for at least the same reasons as claims 1 and 30. Applicants, therefore, respectfully request withdrawal of the rejection.

The Office Action rejects claim 36 under 35 U.S.C. §103(a) as being obvious over *Brennan* in view of U.S. Patent No. 5,624,815 to Grant et al. (*Grant*). Applicants respectfully traverse the rejection.

Claim 36 indirectly depends on claim 1. As discussed above, *Brennan* fails to teach or suggest the above-recited elements of claim 1, namely, "a plurality of capture zones for the localized capture of a drop of said liquid of interest formed on said active surface, the capture zones being placed apart on the active surface, a plurality of operating zones formed on said active surface and separate from the capture zones arranged so that said capture zones surround the operating zones continuously or discontinuously, in such a way that the operating zones are at least partially covered by the drop of the liquid of interest when said drop is captured by said capture zones" and "at least one operating zone is a zone that is substantially non-wetting with respect to the liquid of interest." *Grant* does not cure the deficiency of *Brennan* with respect to claim 1. The Office Action cites *Grant* for disclosing utilizing a suction pump for liquid withdrawal in order to efficiently remove excess liquid. *Office Action*, page 11. Notably, *Grant* also fails to teach or suggest the above-recited elements of claim 1. Accordingly, claim 1 is patentable over the combined teaching of *Brennan* and *Grant*. Claim 36 is therefore also patentable over the combined teaching of *Brennan* and *Grant* for at least the same reasons as claim 1. Applicants, therefore, respectfully request withdrawal of the rejection.

The Office Action rejects claims 39-41 and 46 under 35 U.S.C. §103(a) as being obvious over *Brennan* in view of U.S. Patent No. 5,545,531 to Rava et al. (*Rava*). Applicants respectfully traverse the rejection.

Claims 39-41 and 46 variously depend on claims 1 and 30. As discussed above, *Brennan* fails to teach or suggest the above-recited elements of claims 1 and 30. *Rava* does not cure the deficiency of *Brennan* with respect to claims 1 and 30. The Office Action cites *Rava* for disclosing forming a multiple biological chips wherein probes are exposed on the surface of a substrate in order to bind analyte in a liquid sample. *Office Action*, page 12. Like the other references discussed above, *Rava* also fails to teach or suggest the above-recited elements of claims 1 and 30. Accordingly, claim 1 is also patentable over the combined teaching of *Brennan* and *Rava*. Thus, claims 39-41 and 46 are also patentable over the combined teaching of *Brennan*

and *Rava* for at least the same reasons as claims 1 and 30. Applicants, therefore, respectfully request withdrawal of the rejection.

The Office Action rejects claims 42-44 under 35 U.S.C. §103(a) as being obvious over *Brennan*.

Claim 42 depends on claim 1 and claims 43-44 depend on claim 30. As discussed above, *Brennan* fails to teach or suggest the above-recited elements of claims 1 and 30. Accordingly, claims 1 and 30 and their dependent claims 42-44 are patentable over *Brennan*. Applicants, therefore, respectfully request withdrawal of the rejection.

The application is in condition for allowance and early, favorable action is respectfully solicited. If for any reason the Examiner finds the application other than in condition for allowance, the Examiner is requested to call the undersigned attorney at (202) 496-7500 to discuss the steps necessary for placing the application in condition for allowance. All correspondence should continue to be sent to the below-listed address.

If these papers are not considered timely filed by the Patent and Trademark Office, then a petition is hereby made under 37 C.F.R. §1.136, and any additional fees required under 37 C.F.R. §1.136 for any necessary extension of time, or any other fees required to complete the filing of this response, may be charged to Deposit Account No. 50-0911. Please credit any overpayment to deposit Account No. 50-0911.

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Respectfully submitted,

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